



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

H.P.

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/523,170	03/11/2005	Sunao Kurimura	05022/HG	6481

1933 7590 07/11/2006

FRISHAUF, HOLTZ, GOODMAN & CHICK, PC  
220 Fifth Avenue  
16TH Floor  
NEW YORK, NY 10001-7708

EXAMINER
----------

LEE, JOHN D

ART UNIT	PAPER NUMBER
----------	--------------

2874

DATE MAILED: 07/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/523,170	<b>Applicant(s)</b> KURIMURA ET AL.	
	<b>Examiner</b> John D. Lee	<b>Art Unit</b> 2874	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>0405,0605</u> . | 6) <input type="checkbox"/> Other: ____.  |

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

The three (3) sheets of drawing filed in this application on January 27, 2005, are acceptable.

The abstract of the disclosure is objected to because it is too long. The Examiner has counted 208 words, but the current Rules of Practice limit the abstract to a maximum of 150 words. Correction is required. See MPEP § 608.01(b).

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 is rejected under 35 U.S.C. § 102(b) as being clearly anticipated by the Kurimura et al article ("Quasi-Phase-Matching Quartz Aiming At Ultraviolet Wavelength Conversion"). Kurimura et al discloses a quasi-phase matched wavelength conversion element in which a plurality of polarization inversion regions are formed in a quartz crystal substrate in a periodic manner, and light that is incident from one end of the quartz crystal substrate is subjected to a wavelength conversion by passing through the plurality of polarization inversion regions. The Kurimura et al device can be used for any type of wavelength conversion, including those wherein both signal light and control light wavelengths are required to be input. There must, therefore, necessarily be a light coupling device to couple all required input lightwaves into the quartz crystal.

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 2 is rejected under 35 U.S.C. § 103(a) as being unpatentable over the Kurimura et al article ("Quasi-Phase-Matching Quartz Aiming At Ultraviolet Wavelength Conversion") in view of U.S. Patent 6,347,174 to Onishi et al. Kurimura et al does not disclose a fiber amplifier for amplifying the output wavelength converted light. Onishi et al teaches, however, that it is conventional to use a fiber amplifier for amplifying converted light output from an optical wavelength converter. The use of such an output fiber amplifier in Kurimura et al would thus have been obvious to the person of ordinary skill in the art.

Claim 6 is rejected under 35 U.S.C. § 103(a) as being unpatentable over the Kurimura et al article ("Quasi-Phase-Matching Quartz Aiming At Ultraviolet Wavelength Conversion") in view of U.S. Patent 6,347,174 to Onishi et al, as applied to claim 2 above, further in view of U.S. Patent 6,831,775 to Matsushita et al. Kurimura et al does not disclose an optical filter for eliminating the input wavelengths from the output of the wavelength converter. Matsushita et al, however, teaches that such filters at the outputs of optical wavelength converters are well known in the art. Since the presence of undesired wavelengths can cause deleterious effects, it would have been obvious to the person of ordinary skill to eliminate them and include an appropriate optical filter at the output of the Kurimura et al/ Onishi et al wavelength converter.

Claims 9, 13, and 16 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the Kurimura et al article ("Quasi-Phase-Matching Quartz Aiming At Ultraviolet Wavelength Conversion") in view of U.S. Patent 6,347,174 to Onishi et al and U.S. Patent 6,831,775 to Matsushita et al, as applied to claim 6 above, further in view of U.S. Patent 5,836,073 to Mizuuchi et al. Kurimura et al does not disclose the use of collimators and/or polarizers in the disclosed wavelength converter. Mizuuchi et al shows that these are fairly standard and desirable elements for inclusion in conventional optical wavelength converters. The use of same in the Kurimura et al/Onishi et al/Matsushita et al wavelength converter would thus have been obvious to the person of ordinary skill in the art.

Claims 7, 10, and 14 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the Kurimura et al article ("Quasi-Phase-Matching Quartz Aiming At Ultraviolet Wavelength Conversion") in view of U.S. Patent 6,347,174 to Onishi et al, as applied to claim 2 above, further in view of U.S. Patent 5,836,073 to Mizuuchi et al. Kurimura et al does not disclose the use of collimators and/or polarizers in the disclosed wavelength converter. Mizuuchi et al shows that these are fairly standard and desirable elements for inclusion in conventional optical wavelength converters. The use of same in the Kurimura et al/Onishi et al wavelength converter would thus have been obvious to the person of ordinary skill in the art.

Claim 3 is rejected under 35 U.S.C. § 103(a) as being unpatentable over the Kurimura et al article ("Quasi-Phase-Matching Quartz Aiming At Ultraviolet Wavelength Conversion") in view of U.S. Patent 6,831,775 to Matsushita et al. Kurimura et al does

Art Unit: 2874

not disclose an optical filter for eliminating the input wavelengths from the output of the wavelength converter. Matsushita et al, however, teaches that such filters at the outputs of optical wavelength converters are well known in the art. Since the presence of undesired wavelengths can cause deleterious effects, it would have been obvious to the person of ordinary skill to eliminate them and include an appropriate optical filter at the output of the Kurimura et al wavelength converter.

Claims 8, 11, and 15 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the Kurimura et al article ("Quasi-Phase-Matching Quartz Aiming At Ultraviolet Wavelength Conversion") in view of U.S. Patent 6,831,775 to Matsushita et al, as applied to claim 3 above, further in view of U.S. Patent 5,836,073 to Mizuuchi et al. Kurimura et al does not disclose the use of collimators and/or polarizers in the disclosed wavelength converter. Mizuuchi et al shows that these are fairly standard and desirable elements for inclusion in conventional optical wavelength converters. The use of same in the Kurimura et al/Matsushita et al wavelength converter would thus have been obvious to the person of ordinary skill in the art.

Claims 4, 5, and 12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the Kurimura et al article ("Quasi-Phase-Matching Quartz Aiming At Ultraviolet Wavelength Conversion") in view of U.S. Patent 5,836,073 to Mizuuchi et al. Kurimura et al does not disclose the use of collimators and/or polarizers in the disclosed wavelength converter. Mizuuchi et al shows that these are fairly standard and desirable elements for inclusion in conventional optical wavelength converters. The use of same

in the Kurimura et al wavelength converter would thus have been obvious to the person of ordinary skill in the art.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent 5,270,853 to Bashkansky et al is another disclosure of the use of an optical filter for eliminating the input wavelengths from the output of an optical wavelength converter. The article by Babsail et al describes second-harmonic generation in ion-implanted quartz crystal waveguides, but the quartz crystal does not appear to be quasi-phase matched.

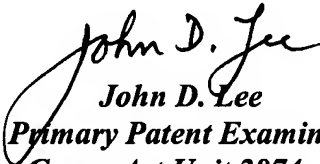
All of the prior art documents cited by applicant in the Information Disclosure Statements filed on April 25, 2005, and June 30, 2005, have been considered and made of record. Note the attached initialed copy of forms PTO-1449.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. § 103(a), the Examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR § 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the Examiner to consider the applicability of 35 U.S.C. § 103(c) and potential 35 U.S.C. §§ 102(e), (f) or (g) prior art under 35 U.S.C. § 103(a).

Any inquiry concerning the merits of this communication should be directed to Examiner John D. Lee at telephone number (571) 272-2351. The Examiner's normal work schedule is Tuesday through Friday, 6:30 AM to 5:00 PM. Any inquiry of a general

Art Unit: 2874

or clerical nature (i.e. a request for a missing form or paper, etc.) should be directed to the Technology Center 2800 receptionist at telephone number (571) 272-1562, to the technical support staff supervisor (Team 8) at telephone number (571) 272-1564, or to the Technology Center 2800 Customer Service Office at telephone number (571) 272-1626.

  
**John D. Lee**  
**Primary Patent Examiner**  
**Group Art Unit 2874**